



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,272	10/21/2003	Jang Sik Cheon	SUN-0031	4945
23413	7590	10/27/2008	EXAMINER	
CANTOR COLBURN, LLP			BODDIE, WILLIAM	
20 Church Street			ART UNIT	PAPER NUMBER
22nd Floor			2629	
Hartford, CT 06103				
NOTIFICATION DATE	DELIVERY MODE			
10/27/2008	ELECTRONIC			

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/691,272	CHEON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	WILLIAM L. BODDIE	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 28 July 2008.

2a) This action is **FINAL**.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 9-12, 17-23 and 26-29 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 9-12, 17-23 and 26-29 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_.

## DETAILED ACTION

1. In an amendment dated, July 28<sup>th</sup>, 2008, the Applicant amended claims 9, 18, 23. Currently claims 9-12, and 17-23 and 26-29 are pending.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 9-12 and 17 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's remaining arguments filed July 28<sup>th</sup>, 2008 have been fully considered but they are not persuasive.

3. On pages 10-11 of the Remarks, the Applicants argue that neither Bohn nor Son disclose a light guide that protrudes upwardly nor "an other portion."

The Examiner must respectfully disagree. As currently claimed there is no limitation requiring that the light guide be a contiguous piece. As such the lenses, 108 and 109, of Bohn can function as the first and second portion of the light guide, respectively. The first portion protruding from the sidewall is lens 108 in figure 7. The second portion of the light guide is the 109 lens in figure 7, which extends to the interior of the case.

As to the limitation requiring that the first portion of the light guide protrude "upwardly", the lens of Bohn appears to protrude in much the same manner and direction as shown in the Applicants' figure 2.

4. On pages 11-12 of the Remarks, the Applicants argue that neither Brogardh nor Mumford expressly disclose providing different functioning optical material for the surfaces and the remaining portion of the light guide.

The Examiner must again respectfully disagree. Mumford discloses the inclusion of collimating lenses at the introduction of the light into the pen (101 in fig. 10) and the exit of the light into the sensors (lenses on 106r-g and 109 in fig. 10). The optical function of these lenses is clearly different from the light pipe material that guides the light from one surface to another.

As shown above the rejections of claims 18-23 and 26-29 are seen as proper and are thus updated to reflect the recent amendments, then maintained.

### ***Claim Objections***

5. Claim 18 is objected to because of the following informalities: line 11 of claim 18 states “the external lights.” There is no previous discussion of external lights within the claim. As such it is recommended that “the external lights” be replaced with ‘external lights.’ Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 18-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

8. As to independent claim 18, the claim now requires that the light guide protrude “upwardly” from the sidewall of the case. As support for this newly added limitation the Applicants cite figure 2 and claim 23. First examining claim 23 reveals no discussion of an “upwardly” protruding light guide, however there is discussion of an outwardly protruding light guide. Turning to figure 2, there is no readily apparent upward protrusion from the sidewall. The light guide appears convex, which is not a shape that would upwardly protrude from the sidewall. For the purposes of the current examination, as to the protrusion direction of the light guide the claims will be examined as though the protrusion of figure 2 was intended to be described. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 9-12 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically independent claim 9, as amended the claim requires that the lower reflecting plate be both “separated from the upper transparent plate” and “contacting the upper transparent plate.” These are seen as two phrases that are inconsistent with each other. For the purposes of the current examination, as to the contact of the plates the claims will be examined as though the drawing of figure 3b was intended to be described.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 9-10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perret, Jr. et al. (US 5,736,686) in view of Rai et al. (US 6,369,866) and Funamoto et al. (US 6,742,907).

**With respect to claim 9**, Perret, Jr. discloses, an optical cursor control device (graphic digitizing tablet) having a light concentrating pad (fig. 1) and an optical pointing device moved on the light concentrating pad by an operator (col. 1, lines 14-19), the light concentrating pad comprising:

an optical wave guide (14 in fig. 1);

a lower reflecting plate (15 in fig. 1; col. 3, line 63) attached to a bottom of the optical wave guide for upwardly reflecting light introduced into the optical wave guide; and

an upper transparent plate (49, 56 in fig. 1) attached to a top of the optical wave guide for passing the light reflected from the lower reflecting plate;

side reflecting plates (52 in fig. 1) attached to a portion of sides of the optical wave guide for reflecting the light in the optical wave guide (col. 5, lines 12-14 discloses that the edge is coated with aluminized mylar thus creating a light concentrating plate (note the rays around 48 in fig. 1)); and

a light concentrating plate (47 in fig. 1), wherein the light concentrating plate reflects external light (58, 40 in fig. 1) into the optical wave guide through another portion of the sides of the optical wave guide (col. 14, lines 24-30; clear from fig. 1).

Perret, Jr. does not expressly disclose that the light concentrating plate is attached to an edge of the lower reflecting plate and separated from the upper transparent plate.

Rai discloses a backlight lighting apparatus (fig. 6; for example) comprising, a light concentrating plate (44 in fig. 6) attached to an edge of a lower reflecting plate (40 in fig. 6) and separated from an upper transparent plate (10 in fig. 6), wherein the light concentrating plate reflects external light into an optical wave guide (20 in fig. 6; clear from fig. 6; col. 6, lines 6-29).

Rai and Perret, Jr. are analogous art because they are both from the same field of endeavor namely backlighting systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to attach the light concentrating plate of Perret, Jr. to an edge of the lower reflecting plate and separate from the upper transparent plate as taught by Rai.

The motivation for doing so would have been to achieve uniform brightness, prevent light leakage, decrease the dimensions of the case (Rai; col. 6, lines 37-39), and most importantly decrease power consumption by a significant amount (Rai; col. 1, lines 25-29).

Neither Rai nor Perret, Jr. expressly disclose an opening in the upper transparent plate nor that the light concentrating plate extends diagonally and upwardly.

Funamoto discloses, an upper transparent plate (lower 6 in fig. 52a, for example) having an opening (leftside opening in fig. 52a) therein for exposing the optical waveguide (11 in fig. 52a), and a surface of an entrance of the opening being parallel to a surface of the lower reflecting plate in direct contact with the optical waveguide (clear from fig. 52a);

wherein a light concentrating plate (left 6 in fig. 52a) is disposed on another portion of the sides of the optical wave guide, extending diagonally and upwardly from a lower reflecting plate (11A in fig. 52a) to a upper transparent plate (lower 6 in fig. 52a), contacting the upper transparent plate adjacent to the opening along a line (fig. 52a), the opening of the upper transparent plate being disposed directly on the light concentrating plate (fig. 52a).

Funamoto, Rai and Perret, Jr. are analogous art because they are both from the same field of endeavor namely backlighting systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to attach angle and arrange the light concentrating plate of Perret, Jr. and Rai as taught by Funamoto.

The motivation for doing so would have been for effective illumination (Funamoto; col. 25, lines 8-10).

**With respect to claim 10**, Rai, Funamoto and Perret, Jr. disclose, the optical cursor control device according to claim 9 (see above).

Perret, Jr. further discloses, wherein the upper transparent plate includes regular patterns drawn on a surface thereof (col. 4, lines 42-46).

**With respect to claim 17**, Rai, Funamoto and Perret, Jr. disclose, the optical cursor control device according to claim 9 (see above).

Perret, Jr. further discloses, a light source (16 in fig. 1) emitting a light toward the light concentrating plate, wherein the light concentrating plate reflects the light from the light source into the optical wave guide (clear from fig. 1).

It should be noted that Rai also discloses a light source (50 in fig. 6; and ambient light sources in fig. 6), which are reflected by the light concentrating plate.

12. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perret, Jr. et al. (US 5,736,686) in view of Rai et al. (US 6,369,866), Funamoto et al. (US 6,742,907) and further in view of Lyon (US 4,521,772).

**With respect to claim 11**, Rai, Funamoto and Perret, Jr. disclose, the optical cursor control device according to claim 9 (see above).

Neither Rai, Funamoto nor Perret, Jr. expressly disclose further detail regarding the optical pointing device.

Lyon discloses, an optical pointing device comprises;  
a case (108 in fig. 22) including a lower panel, the lower panel having an opening (clear from fig. 22);

an optical sensor (120 in fig. 22) mounted inside the case for sensing reflected light introduced into the case through the opening (fig. 22); and  
a printed circuit board (110 and 112 in fig. 22) for processing a signal outputted from the optical sensor to generate an output signal that corresponds to a position of the case.

Lyon, Rai, Funamoto and Perret, Jr. are analogous art because they are all from the same field of endeavor namely, backlight control systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to construct the optical pointing device of Rai, Funamoto and Perret, Jr. as taught by Lyon.

The motivation for doing so would have been due to its high reliability over long periods of time (Lyon; col. 2, lines 20-24).

**With respect to claim 12**, Lyon, Rai, Funamoto and Perret, Jr. disclose, the optical cursor control device according to claim 11 (see above).

Lyon further discloses, wherein the optical pointing device further comprises: a switch module disposed on the printed circuit board (114, 115 in fig. 22); and a button disposed at the top surface of the case to turn on or off the switch module (116 in fig. 22).

13. Claims 18 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn (US 6,618,038) in view of Son (US 6,741,234).

**With respect to claim 18**, Bohn discloses, an optical cursor control device (fig. 1 for example) including a worktable (140 in fig. 7) and an optical pointing device (500) moved on the worktable by an operator, the optical pointing device comprising: a case (504 in fig. 7); a light guide (108 in fig. 7) disposed at a sidewall of the case (clear from fig. 7), one portion of the light guide being a protrusion upwardly protruding from the sidewall of the case (seems clear from fig. 7), the one portion of the light guide being exposed to an

external environment outside the case (col. 4, lines 59-60), another portion of the light guide (109 in fig. 7) extending from the sidewall of the case to an interior of the case by a predetermined length (fig. 7), the other portion of the light guide being exposed to an internal environment inside the case (clear from fig. 7), the light guide directly accepting the external lights through the protrusion to obliquely irradiate lights penetrating the light guide (note the ray traces in fig. 7) onto a surface of the worktable through an opening (507 in fig. 7) formed in a lower panel of the case (506 in fig. 7);  
an optical sensor (511 in fig. 7) disposed in the case and over the opening to detect lights reflecting from the surface of the worktable (clear from fig. 7).

While Bohn's invention is aimed to providing illumination out of the case, it is seen as inherent that external light incident on the lenses of Bohn would satisfy the limitations of the claims as currently written.

Bohn does not expressly disclose, a printed circuit board.

Son discloses, an optical pointing device (fig. 7) comprising; a printed circuit board (23 in fig. 7) with electronic parts (27 in fig. 7) processing an output signal of an optical sensor (25, 27 in fig. 7) to generate an output signal that corresponds to a position of the case (note the output wiring in fig. 7).

Bohn and Son are analogous art because they are from the same field of endeavor namely, optical cursor control devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the printed circuit bard of Son in the cursor control device of Bohn.

The motivation for doing so would have been to provide support for additional structures in the cursor control device (Son; col. 3, lines 41-43).

**With respect to claim 21**, Son and Bohn expressly disclose, the optical cursor control device according to claim 18 (see above).

Bohn further discloses, comprising a light emitting device (520 in fig. 7) installed in the case, wherein the light emitting device is automatically or manually turned on (col. 9, lines 46-50; for example) and the lights from the light emitting device are irradiated onto the surface of the work table through the opening (clear from fig. 7).

**With respect to claim 22**, Son and Bohn expressly disclose, the optical cursor control device according to claim 18 (see above).

Son further discloses, a switch module (22 in fig. 7) mounted on the printed circuit board (23 in fig. 7); and a button (21 in fig. 7) disposed on a top of the case to turn on or turn off the switch module (clear from fig. 7).

14. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn (US 6,618,038) in view of Son (US 6,741,234) and further in view of Hines (US 6,111,563).

**With respect to claim 19**, Son and Bohn expressly disclose, the optical cursor control device according to claim 18 (see above).

Bohn further discloses, irradiating the lights penetrating the protrusion onto the surface of the worktable (note the ray traces from 108 in fig. 7).

Neither Son nor Bohn expressly disclose, wherein the light guide includes a light concentrating surface and an illuminating surface.

Hines discloses, an optical cursor control device (fig. 5), wherein a light guide (22 in fig. 5) includes a light concentrating surface (outer surface of lens 22) located at a protrusion to directly accept external lights (note the rays in fig. 5) and an illuminating surface (inner surface of lens 22) located opposite the protrusion (col. 3, lines 58-67).

Hines, Son and Bohn are analogous art because they are all from the same field of endeavor namely, optical cursor control devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the lens of the Son and Bohn device with those taught by Hines.

The motivation for doing so would have been their optically wide angle of ray transmission (Hines; col. 7, lines 46-55).

**With respect to claim 20,** Hines, Son and Bohn expressly disclose, the optical cursor control device according to claim 19 (see above).

Hines further discloses, wherein the illuminating surface has an area smaller than that of the light concentrating surface (clear from fig. 5, that the inner rays of Hines are found on a much smaller surface area than those on the outside of the housing).

15. Claims 23 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brogårdh et al. (US 4,475,240) in view of Mumford (US 6,377,249).

**With respect to claim 23,** Brogårdh discloses, an optical cursor control device (fig. 9) having a worktable (3 in fig. 9) and an optical pointing device (fig. 9) moved on the worktable by an operator, the optical pointing device comprising:

a case (33 in fig. 4a; for example);

an optical sensor disposed in the case (129 in fig. 9; for example);

a light guide (36, 121 in fig. 9) that comprises a first surface (bottom of 36 in fig. 9) accepting light reflecting from a surface of the worktable (3 in fig. 9) adjacent to the case, and a second surface (top of 121 in fig. 9) of the light guide being adjacent to the case (clear from fig. 4b) and introducing the light penetrating the light guide onto an optical sensor in the case (129 in fig. 9); and

a printed circuit board (140 in fig. 9; col. 7, lines 16-23) with electronic parts (141-144 in fig. 9; and fig. 10) processing an output signal of the optical sensor to generate an output signal that corresponds to a position of the case (col. 7, lines 24-66).

Brogårdh does not expressly disclose that the first surface is spaced away from the case or that the light guide includes differently functioning optical material.

Mumford discloses an optical cursor control device having a light guide including a first surface spaced away from the case (7 in fig. 20) and a second surface of the light guide. Mumford further discloses wherein the first and second surfaces include one optically functioning material (collimating lenses 101 and on each sensor in fig. 10), and a remaining portion of the light guide including optically different functioning material from the first and second surfaces (the fiber optics, 104 and 109 in figs. 10 and 20, is clearly different functioning than the lenses disclosed).

Mumford and Brogårdh are analogous art because they are both from the same field of endeavor namely fiber optic light guide pens.

At the time of the invention it would have been obvious to one of ordinary skill in the art to arrange the light guide of Brogårdh and include the lenses of Mumford for the well-known benefit of increased light introduction and field of view.

**With respect to claim 26**, Brogårdh and Mumford disclose, the optical cursor control device according to claim 23 (see above).

Brogårdh does not expressly disclose including light concentrators.

Mumford discloses, wherein the light guide further comprises light concentrators disposed at the first (101 in fig. 10) and second surfaces (note the convex lens located on the detectors 106 in fig. 10), and the light concentrators increase the intensities of the lights passing through the light concentrators (col. 12, lines 20-22).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the light concentrators of Mumford on the light guide of Brogårdh for the benefit of increased light intensity (Mumford; col. 12, lines 20-22).

**With respect to claim 27**, Brogårdh and Mumford disclose, the optical cursor control device according to claim 26 (see above).

Brogårdh, when combined with Mumford, further discloses wherein the light concentrators are convex lenses (Mumford; clear from fig. 10).

**With respect to claim 28**, Brogårdh and Mumford disclose, the optical cursor control device according to claim 23 (see above).

Brogårdh does not expressly disclose a button.

Mumford discloses, a switch module (236 in fig. 24) mounted on the printed circuit board; and a button (116 in fig. 20) disposed on a top of the case to turn on or off the switch module.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the button and switch module of Mumford on the circuit board of Brogårdh for the well-known benefit of increased user functionality.

**With respect to claim 29**, Brogårdh and Mumford disclose, the optical cursor control device according to claim 23 (see above).

Brogårdh further discloses wherein the first and second surfaces are parallel to each other (clear from fig. 9).

***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM L. BODDIE whose telephone number is

(571)272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sumati Lefkowitz/  
Supervisory Patent Examiner, Art Unit 2629

/W. L. B./  
Examiner, Art Unit 2629  
10/23/08